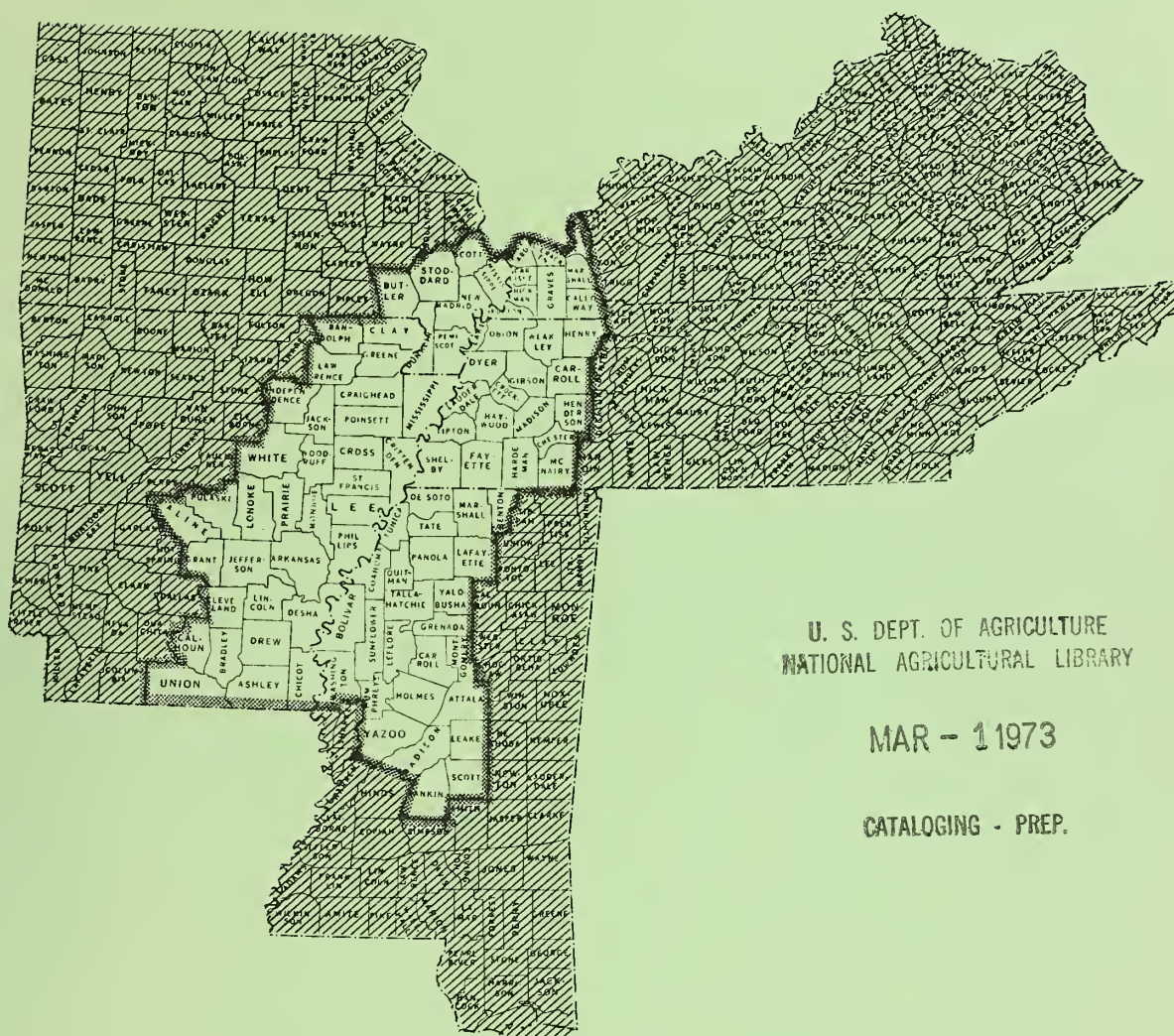


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SOIL SURVEY INTERPRETATIONS FOR WOODLANDS  
 IN THE  
 SOUTHERN MISSISSIPPI VALLEY SILTY UPLANDS  
 OF  
 ARKANSAS, KENTUCKY, MISSISSIPPI, MISSOURI, AND TENNESSEE  
 With Average Rainfall of 25 to 30 Inches  
 During the Frost-Free Period



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PROGRESS REPORT W-4 - - - OCTOBER 1968

UNITED STATES DEPARTMENT OF AGRICULTURE  
 Soil Conservation Service  
 Fort Worth, Texas



This report contains interpretations of soil surveys for woodland use and management in the Southern Mississippi valley silty uplands in Arkansas, Kentucky, Mississippi, Missouri, and Tennessee, with mean precipitation of 25-30 inches during the frost-free period. The purpose is to provide currently available knowledge about soils as they relate to the establishment, growth, management, and harvesting of wood crops for the use of foresters, agricultural workers, woodland owners, and woodland managers. The information will be used by the Soil Conservation Service and cooperating agencies in the development of technical guides, soil handbooks, and published soil survey reports.

Field information was gathered by teams of foresters and soil scientists. Representatives of Federal and State agencies, the wood-using industry, and others cooperated in gathering field data. Information obtained from soil-woodland studies was recorded by soil taxonomic units. Much of the site index and species suitability information for hardwoods was provided by the U. S. Forest Service Southern Hardwood Laboratory of the Southern Forest Experiment Station. The interpretations presented herein are made for use with soil surveys.

Table 2, SOIL RATINGS FOR WOODLAND USE, contains some evaluations for individual soil units. The soil series listed are those defined according to the current soil classification system. In column one (1) the soil units were consolidated within a soil series where it was determined there were no differences in productivity, species suitability, or management problems.

Column two (2) includes a list of most of the commercially important tree species which are adapted to the soil in column one. These are the

tree species which woodland managers generally favor in intermediate or improvement cuttings, after considering the form and vigor of individual trees. Priority between species will be influenced by local marketability and the owner's objectives, as well as by growth rates, values, and the quality of wood products from a given species.

Column three (3) indicates the average site index for the most important species listed in column two (2). The standard deviation is shown as a plus or minus figure ( $\pm$ ) for each species where five or more plots were taken on the soils listed in column one. The site index curves used for each tree species are shown in Table 1, GUIDE FOR WOODLAND SUITABILITY CLASSES. An asterisk (\*) following a site index rating indicates the rating is an estimate based on the same species on a similar soil, or by comparison with another species on the same soil. Site index is the average height of dominant trees at age 30 for cottonwood, age 35 for sycamore, and age 50 for all other species.

Column four (4) indicates the range of site index of the most important tree species in column two. The range in site index values is dependent on soil physical conditions, aeration, and nutrient and moisture availability during the growing season.

Column five (5) evaluates the potential erosion hazard of the soil in woodland use following cutting operations, or where the soil is exposed along roads, trails, firebreaks, or log-yarding areas. A rating of slight indicates that problems of erosion control are unimportant. A rating of moderate indicates some attention must be given to prevent unnecessary soil erosion. A rating of severe indicates that intensive treatments, or special equipment and methods of operation should be planned to minimize soil erosion. The potential erosion hazard is based on slope, soil depth,

and erodibility, and soil loss tolerance.

Column six (6) includes evaluation of equipment restrictions. Ratings reflect limitations in the use of equipment for managing or harvesting the tree crop. A rating of slight indicates equipment use is seldom limited in kind or time of year. A rating of moderate indicates a need for modified equipment or seasonal restrictions due to slope, obstructions, soil wetness, flooding, or overflows. A rating of severe indicates the need for specialized equipment due to one or more of the factors listed above.

Column seven (7) indicates the degree of expected seedling mortality during the first two growing seasons after trees are planted or direct seeded. Normal rainfall, adequate site preparation, good planting stock, proper planting methods, and appropriate protection and cultivation are assumed. A rating of slight indicates that unsatisfactory survival on less than 25 percent of the area is likely. A rating of moderate indicates that unsatisfactory survival is likely on 25 to 50 percent of the area planted. A rating of severe indicates that unsatisfactory survival is likely on more than 50 percent of the area.

Column eight (8) lists several suitable tree species for planting on the soil named in column one. The list may include some species which do not normally occur in native stands on the designated soil or in this resource area, as well as some of the important species listed in column two.

Column nine (9) shows the ordination of the soils into a woodland suitability group. A woodland suitability group is made up of kinds of soil that are capable of producing similar kinds of wood crops, that need similar management to produce these crops, and that have about the same potential productivity. The ordination system and the suitability group

symbols are explained in the following paragraphs.

The first element of the group symbol indicates the woodland suitability class. It expresses site quality by an arabic numeral ranging from 1 to 5, with class 1 the highest in potential productivity, followed by class 2, 3, 4, and 5. It is based on the average site index of one or more indicator forest types or tree species, as shown in Table 1, GUIDE FOR WOODLAND SUITABILITY CLASSES. The indicator species are underscored in column two (2) of Table 2.

The second element in the symbol indicates the suitability subclass. It expresses selected soil properties that cause moderate to severe hazards or limitations in woodland use or management, by one of the following lower case arabic letters:

Subclass w (excessive wetness). Soils in which excessive water, either seasonally or year long, causes significant limitations for woodland use or management. These soils have restricted drainage, high water tables, or overflow hazards which adversely affect either stand development or management.

Subclass c (clayey soils). Soils having restrictions or limitations for woodland use or management due to the kind or amount of clay in the upper portion of the soil profile.

Subclass s (sandy soils). Sandy soils with little or no textural B horizons and having moderate to severe restrictions or limitations for woodland use or management. These soils impose equipment limitations, have low moisture-holding capacity, and normally are low in available plant nutrients.

Subclass r (relief or slope steepness). Soils with restrictions or limitations for woodland use or management due only to steepness of slope.

Subclass o (slight or no limitations). Soils with no significant restrictions or limitations for woodland use or management.

Some kinds of soil may have more than one set of subclass characteristics. Priority in placing each kind of soil into a subclass is in the order that the subclass characteristics are listed above.

The third element in the symbol indicates the degree of hazards or limitations, and the general suitability of the soils for certain kinds of trees. The three management problems considered here are: (1) erosion hazard, (2) equipment restrictions, and (3) seedling mortality.

The numeral 1 indicates soils with no to slight management problems, and they are best suited for needleleaf trees.

The numeral 2 indicates soils with one or more moderate management problems, and they are best suited for needleleaf trees.

The numeral 3 indicates soils with one or more severe management problems, and they are best suited for needleleaf trees.

The numeral 4 indicates soils with no to slight management problems, and they are best suited for broadleaf trees.

The numeral 5 indicates soils with one or more moderate management problems, and they are best suited for broadleaf trees.

The numeral 6 indicates soils with one or more severe management problems, and they are best suited for broadleaf trees.

The numeral 7 indicates soils with no to slight management problems, and they are suitable for either needleleaf or broadleaf trees.

The numeral 8 indicates soils with one or more moderate management problems, and they are suitable for either needleleaf or broadleaf trees.

The numeral 9 indicates soils with one or more severe management problems, and they are suitable for either needleleaf or broadleaf trees

The numeral 0 indicates the soils are not suitable for the production of major commercial wood products.

TABLE 1 - GUIDE FOR WOODLAND SUITABILITY CLASSES

## SOUTHERN MISSISSIPPI VALLEY-SILTY UPLANDS (134)

Indicator Forest Type or Species		1	2	3	4	5
		Very	High	Moderately		Low
		High		High	Moderate	
		Site Index Range				
Cottonwood	(1):	106+	96-105	86-95	76-85	75-
Yellow-poplar	(2):	106+	96-105	86-95	76-85	75-
Sweetgum	(3):	96+	86-95	76-85	66-75	65-
Water oaks	(4):	96+	86-95	76-85	66-75	65-
Loblolly pine	(5):	96+	86-95	76-85	66-75	65-
Slash pine	(6):	96+	86-95	76-85	66-75	65-
Shortleaf pine	(5):	86+	76-85	66-75	56-65	55-
Longleaf pine	(6):	86+	76-85	66-75	56-65	55-
Sou.-red oak	(7):	86+	76-85	66-75	56-65	55-
Nuttall oak	(8):	96+	86-95	76-85	66-75	65-

- (1) Broadfoot, W. M., 1960, Field Guide for Evaluating Cottonwood Sites, USFS Occ. Paper 178 (Fig.4).
- (2) Doolittle, W. T., 1957, Site Index Curves for Yellow-poplar-Sou. Appalachians.
- (3) Broadfoot, W. M., 1959, Guide for Evaluating Sweetgum Sites, USFS Occ. Paper 176 (Fig. 4).
- (4) Broadfoot, W. M., 1963, Guide for Evaluating Water Oak Sites in the Mid-south, USFS Res. Paper SO-1 (Fig. 4).
- (5) Coile, T. S. and F. X. Schumacher, Jour. For. 55:432-435 (Fig. 4).
- (6) U. S. Forest Service, 1929, Volume, Yield and Stand Tables for Second Growth Southern Pines, USDA Misc. Publ. 50 (Fig. 2,3,4).
- (7) Schnur, L. G., 1937, Yield, Stand and Volume Tables for Even-aged Upland Oak Forests, USDA Techn. Bull. 560, Fig. 2 (MLRA 116, 117, 118, 119), and Olson, D. G., 1959, Site Curves for Upland Oaks in Sou. Appalachians, SE For. Expmt. Sta. Res. Note 125 (MLRA 122, 123, 125, 128, 129, 130, 136).
- (8) Broadfoot, W. M., Unpublished manuscript, Sou. For. Expmt. Sta., 1966.

TABLE 2. SOIL RATINGS FOR WOODLAND USE

Page 1 of 7.

Soils	Potential Productivity			Management Problems			Species Suitability for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Adler</u> silt loam 0-2% slopes	Ash, green <u>Cottonwood, eastern</u> Elms, American and slippery Hackberry and sugarberry Honeylocust Maple, red Oak, cherrybark Oak, Nuttall Oak, water Oak, willow Pecan Walnut, black	90* 112	105-68 127-92	Slight	Slight	Slight	Ash, green Cottonwood, eastern Oak, cherrybark Oak, Nuttall	1o4
<u>Adler</u> silt loam 0-2% slopes frequently flooded				Slight	Moderate	Moderate		1w5
<u>Arkabutla</u> silt loam, loam, silty clay loam, 0-2% slopes	Ash, green Baldcypress <u>Cottonwood, eastern</u> Elms, American and slippery Hackberry Honeylocust Maple, red Oak, cherrybark Oak, Laurel Oak, Nuttall Oak, overcup Oak, water Oak, white Oak, willow Persimmon, common Pine, loblolly <u>Sweetgum</u>	93+5 108+11	105-71 118-88	Slight	Moderate	Slight	Ash, green Cottonwood, eastern Oak, cherrybark Oak, Nuttall Oak, Shumard Oak, swamp chestnut Oak, water Oak, willow Pine, loblolly Sweetgum Sycamore, American Yellow-poplar	1w8
<u>Arkabutla</u> silt loam, loam, silty clay loam, 0-2% slopes, frequently flooded				Slight	Severe	Moderate		1w9
<u>Atwood</u> silt loam, 0-8% slopes	Hickories(exc.water) Oak, cherrybark Oak, Shumard Oak, white <u>Pine, loblolly</u> <u>Sweetgum</u>	90* 86* 85*	100-80 93-80 95-75	Slight	Slight	Slight	Oak, cherrybark 1/ Oak, Shumard 1/ Pine, loblolly Sweetgum 1/ Yellow-poplar 1/	2o7
<u>Bude</u> silt loam, 0-5% slopes	Oak, cherrybark Oak, water Oak, white Oak, willow Pine, loblolly <u>Sweetgum</u>	88 86 88*	90-75 93-80 95-80	Slight	Moderate	Slight	Oak, cherrybark Oak, Shumard Pine, loblolly Sweetgum Yellow-poplar	2w8

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Soils	Potential Productivity			Management Problems			Species Suitability for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Calhoun</u> silt loam, 0-2% slopes	Oak, cherrybark Oak, southern red Oaks, upland Oak, water Oak, white <u>Pine, loblolly</u> Sweetgum	80*	85-76	Slight	Severe	Moderate (Severe in depressions)	Oak, cherrybark Pine, loblolly Sweetgum	3w9
<u>Calloway</u> silt loam, 0-2% slopes	Ash, green or white Oak, cherrybark Oak, Nuttall Oak, Shumard Oak, southern red Oak, swamp chestnut Oak, water Oak, white Oak, willow <u>Pine, loblolly</u> Pine, shortleaf <u>Sweetgum</u> Sycamore, American Tupelo, black Yellow-poplar	68 78 80*    82  80* 90 85 86	80-50 83-63 87-65   89-67  84-67 96-82 90-78 93-71	Slight	Moderate	Slight	Ash, green or white Oak, cherrybark Oak, Nuttall Oak, Shumard Oak, water Oak, willow Sweetgum Yellow-poplar	2w8
<u>Collins</u> silt loam, 0-2% slopes	Ash, green & white Basswood, American Cherry, black Cottonwood, eastern Elms, American and slippery Hackberry and sugarberry Hickories(exc.water) Magnolia, southern Maple, red Oak, cherrybark Oak, Nuttall Oak, southern red <u>Oak, water</u> Oak, white Oak, willow Persimmon, common Pine, loblolly Pine, shortleaf Sassafras Sweetgum Tupelo, black Walnut, black Yellow-poplar	96  120      112+6 114  104+7  104   93 80  102+8	103-74  130-100     119-100 116-102  111-92  108-94  100-87 85-76  111-90	Slight	Slight	Slight	Ash, green Cottonwood, eastern Oak, cherrybark Oak, Nuttall Oak, Shumard Oak, swamp chestnut Oak, water Oak, willow Pine, loblolly Sweetgum Sycamore, American Yellow-poplar	1o7
<u>Collins</u> silt loam, 0-2% slopes frequently flooded				Slight	Moderate	Moderate		1w8
<u>Dexter</u> loam, silt loam, fine sandy loam 0-17% slopes	Basswood, American Cherry, black Oak, cherrybark Oak, southern red Oak, water Oak, white <u>Pine, loblolly</u> <u>Sweetgum</u>	92*  90*  90 92*	105-80  95-75  96-85 105-80	Slight	Slight	Slight	Oak, cherrybark Oak, Shumard Oak, swamp chestnut Oak, water Pine, loblolly Sweetgum Yellow-poplar	2o7

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Soils	Potential Productivity			Management Problems			Species Suitability for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Dexter</u> (continued)	Sycamore, American Tupelo, black Walnut, black							
<u>Dexter</u> loam, silt loam, fine sandy loam, 17-45% slopes				Moderate	Moderate	Slight		2r8
<u>Falaya</u> silt loam 0-2% slopes	Ash, green Baldcypress Cottonwood, eastern Elms, American and slippery Hackberry and sugar- berry Hickories (exc. water) Magnolia, southern Maple, red Oak, cherrybark Oak, Nuttall Oak, overcup Oak, Shumard Oak, swamp chestnut Oak, water Oak, white Oak, willow Persimmon, common <u>Pine, loblolly</u> Pine, shortleaf Sweetgum	92+6  110        102+7 109   102+4  99+7  96+11 87	104-70  120-90      109-90 111-97  109-90  103-84  107-85 93-80	Slight	Moderate	Slight	Ash, green Cottonwood, eastern Oak, cherrybark Oak, Nuttall Oak, Shumard Oak, Swamp chestnut Oak, water Oak, willow Sweetgum Sycamore, American Yellow-poplar	1w8
<u>Falaya</u> silt loam, 0-2% slopes frequently flooded				Slight	Severe	Moderate		1w9
<u>Falkner</u> silt loam, 0-8% slopes	Oak, cherrybark Oak, swamp chestnut Oak, water Oak, white <u>Pine, loblolly</u> Pine, shortleaf Sweetgum Sycamore, American Yellow-poplar	90*  80*  86+5 76 88	100-80  90-70  92-80 82-70 95-80	Slight	Moderate	Slight	Oak, cherrybark Oak, Shumard Oak, water Pine, loblolly Pine, shortleaf Sweetgum	2w8
<u>Frost</u> silt loam, 0-2% slopes	Oak, cherrybark Oak, southern red Oak, water <u>Pine, loblolly</u> Sweetgum Yellow-poplar	80*	85-76	Slight	Severe	Moderate (Severe in de- pressions)	Oak, cherrybark Pine, loblolly Sweetgum	3w9
<u>Grenada</u> silt loam, 0-17% slopes	Oak, cherrybark Oak, southern red Oak, swamp chestnut Oak, water Oak, white <u>Pine, loblolly</u> Pine, shortleaf Sweetgum Yellow-poplar	85 80+9  80  84 77 78	90-70 90-70  85-65  94-80 85-70 85-70	Slight	Slight	Slight	Oak, cherrybark 1/ Oak, Shumard 1/ Oak, southern red 1/ Oak, water 1/ Oak, white 1/ Pine, loblolly Pine, shortleaf Sweetgum 1/	3o7

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Soils	Potential Productivity			Management Problems			Species Suitability for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Henry</u> silt loam, 0-2% slopes	Oak, cherrybark Oak, Nuttall Oak, southern red Oak, swamp chestnut Oak, water Oak, white Oak, willow <u>Pine, loblolly</u> Pine, shortleaf Sweetgum Tupelo, black Yellow-poplar	79+5 72   76+2  74+7 83+9 80 76+6	85-70 80-65   83-65  80-65 93-78 86-75 83-65	Slight	Severe	Severe	Oak, Shumard Oak, water Pine, loblolly Sweetgum	3w9
<u>Lax</u> silt loam, 0-17% slopes	Oak, cherrybark Oak, swamp chestnut Oak, water Oak, white <u>Pine, loblolly</u> Sweetgum Sycamore, American	83*  78*  84* 83*	90-75  85-70  90-78 90-75	Slight	Slight	Slight	Oak, cherrybark <u>1/</u> Oak, Shumard <u>1/</u> Oak, water <u>1/</u> Pine, loblolly Sweetgum <u>1/</u> Yellow-poplar <u>1/</u>	3o7
<u>Lexington</u> silt loam, 0-17% slopes	Cherry, black Hickories(exc.water) Oak, cherrybark Oak, southern red Oak, water Oak, white Oak, willow <u>Pine, loblolly</u> <u>Pine, shortleaf</u> Sweetgum Sycamore, American Tupelo, black Yellow-poplar Walnut, black	  80  80   80 70 89	  95-75  85-70   86-75 76-65 95-75	Slight	Slight	Slight	Oak, cherrybark Oak, Shumard Oak, swamp chestnut Oak, water Pine, loblolly Pine, shortleaf Sweetgum Yellow-poplar	3o7
<u>Loring</u> silt loam, 0-17% slopes	Hickories(exc.water) Magnolia, southern Oak, cherrybark Oak, Shumard Oak, southern red Oak, water Oak, white <u>Pine, loblolly</u> Pine, shortleaf Sweetgum Tupelo, black Yellow-poplar	  86  74+8 82 63+9 85 65 90	  95-71  83-65 89-67 73-54 92-81 76-60 99-80	Slight	Slight	Slight	Ash, green Oak, cherrybark Oak, Shumard Oak, southern red Oak, swamp chestnut Oak, water Oak, white Pine, loblolly Pine, shortleaf Sweetgum Sycamore, American Yellow-poplar	3o7
<u>Memphis</u> silt loam, 0-17% slopes	Oak, cherrybark Oak, Shumard Oak, southern red Oak, swamp chestnut Oak, water Oak, white Oak, willow <u>Pine, loblolly</u> <u>Pine, shortleaf</u> Sweetgum Tupelo, black Walnut, black Yellow-poplar	100 84 80+6  90 70+6 90 87 75 90  87 103+10	105-90 90-75 88-74  95-75 78-62 95-75 94-82 80-70 100-80  95-80 115-90	Slight	Slight	Slight	Oak, cherrybark Oak, Shumard Oak, southern red Oak, water Oak, white Oak, willow Pine, loblolly Pine, shortleaf Sweetgum Walnut, black Yellow-poplar	2o7

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Soils	Potential Productivity			Management Problems			Species Suitability for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Memphis</u> silt loam, 17-45% slopes	Ash, green or white Basswood, American Cherry, black Hickories(exc.water) Magnolia, southern Oak, Shumard Oak, southern red Oak, water Oak, willow Persimmon, common <u>Pine, loblolly</u> Sassafras Sweetgum Tupelo, black Walnut, black Yellow-poplar	87       100 100    90*   105	97-60       105-90 105-90   96-85   110-90	Slight	Moderate	Slight	Ash, green or white 1/ Cottonwood, eastern 1/ Oak, cherrybark 1/ Oak, Shumard 1/ Oak, swamp chestnut 1/ Oak, water 1/ Oak, willow 1/ Pine, loblolly Sweetgum 1/ Sycamore, American 1/ Yellow-poplar	2r8
<u>Morganfield</u> silt loam, 0-2% slopes	Ash, green Cottonwood, eastern Elms, American and slippery Hackberry and sugar- berry Oak, cherrybark Oak, Nuttall Oak, water Pecan <u>Sweetgum</u> Walnut, black	90* 115*          110*	100-75 125-95       120-100	Slight	Slight	Slight	Ash, green Cottonwood, eastern Sweetgum Sycamore, American	1o4
<u>Natchez</u> silt loam, 0-17% slopes	Oak, cherrybark Oak, Shumard Oak, white <u>Pine, loblolly</u>	  73* 90	  96-85	Slight	Slight	Slight	Oak, cherrybark 1/ Oak, Shumard 1/ Oak, white 1/ Pine, loblolly	2o7
<u>Natchez</u> silt loam, 17-45% slopes	Basswood, American Cottonwood, eastern Magnolia, southern Oak, cherrybark Oak, water <u>Pine, loblolly</u> Sassafras Sweetgum	108*     90*  105*	115-100   96-85  110-100	Moderate	Moderate	Slight	Ash, green or white 1/ Cottonwood, eastern 1/ Pine, loblolly Sweetgum 1/ Sycamore, American 1/	2r8
<u>Olivier</u> silt loam, 0-5% slopes	Oak, cherrybark Oak, Nuttall Oak, water Oak, white Oak, willow Pine, loblolly <u>Sweetgum</u> Yellow-poplar	93* 96* 81*  73* 90* 86*	95-78 98-81 88-66  80-65 95-86 93-71	Slight	Moderate	Slight	Oak, cherrybark Oak, Nuttall Oak, Shumard Oak, swamp chestnut Oak, water Oak, willow Pine, loblolly Sweetgum	2w8
<u>Paden</u> silt loam, 0-5% slopes	Oak, cherrybark Oak, southern red Oak, swamp chestnut Oak, water Oak, white <u>Pine, loblolly</u> Pine, shortleaf Sweetgum Yellow-poplar	     78+6 70	   85-73 78-65	Slight	Slight	Slight	Oak, cherrybark Oak, Shumard Oak, southern red Oak, water Oak, white Pine, loblolly Pine, shortleaf Sweetgum	3o7

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Soils	Potential Productivity			Management Problems			Species Suitability for Planting	Ordination Woodland Suitability Group
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Providence</u> silt loam, 0-17% slopes	Oak, cherrybark Oak, Shumard Oak, swamp chestnut Oak, water Oak, white <u>Pine, loblolly</u> Pine, shortleaf Sweetgum Sycamore, American	95*     84+10 64+7 90	105-85     95-73 73-58 100-80	Slight	Slight	Slight	Oak, cherrybark 1/ Oak, Shumard 1/ Pine, loblolly Pine, shortleaf Sweetgum 1/ Yellow-poplar 1/	3o7
<u>Rosebloom</u> silt loam, 0-5% slopes	Ash, green Baldcypress Cottonwood, eastern Elm, American Hackberry Hickory, water Honeylocust Magnolia, southern Maple, red Oak, cherrybark Oak, Nuttall Oak, overcup Oak, Shumard Oak, water Oak, white Oak, willow Persimmon, common Pine, loblolly Pine, shortleaf <u>Sweetgum</u>	90+6  100*       87 95*   99  80  86 74 89+10	102-75  110-85       92-80 102-88   101-92  84-73  92-80 80-68 96-82	Slight	Severe	Moderate	Ash, green Cottonwood, eastern Oak, cherrybark Oak, Nuttall Oak, swamp chestnut Oak, water Oak, willow Pine, loblolly Sweetgum Sycamore, American Tupelo, water	2w9
<u>Routon</u> silt loam, 0-5% slopes	Ash, green or white Elms, American and slippery Hackberry Honeylocust Oak, cherrybark Oak, Shumard Oak, water Oak, white Oak, willow <u>Sweetgum</u> Yellow-poplar	90*     110  90*   105*	100-80     112-98  100-80   110-100	Slight	Severe	Moderate to Severe	Ash, green or white Oak, cherrybark Oak, Nuttall Sweetgum Sycamore, American	1w6
<u>Tippah</u> silt loam, 0-17% slopes	Basswood, American Oak, cherrybark <u>Oak, water</u> Oak, white <u>Pine, loblolly</u> Pine, shortleaf Sweetgum Sycamore, American	90* 80*  78* 63+7 90*	100-80 90-70  85-70 71-55 100-80	Slight	Slight	Slight	Oak, cherrybark Oak, Shumard Oak, swamp chestnut Oak, water Pine, loblolly Pine, shortleaf Sweetgum Yellow-poplar	3o7
<u>Tippo</u> silt loam 0-2% slopes	Ash, green or white Oak, cherrybark Oak, swamp chestnut Oak, white <u>Sweetgum</u> Yellow-poplar	58 80*   91	70-50 90-70   93-71	Slight	Moderate	Slight	Ash, green or white Oak, cherrybark Oak, Shumard Sweetgum	2w8

TABLE 2. SOIL RATINGS FOR WOODLAND USE

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Table 3, SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY, is a summary of the most important interpretations for woodland suitability group of soils.

Column one (1) includes the suitability group symbol and a brief description of the group of soils, including their important hazards and limitations for woodland use and management.

Column two (2) is a tabulation of the soils within each woodland suitability group.

Column three (3) is a list of some commercially-important tree species which occur on the soils in each suitability group.

Column four (4) shows the site class (site index rounded off to the nearest 10-foot interval) for the most important tree species listed in column three.

Column five (5) lists some of the most important tree species which are suitable for planting on the soils in each suitability group.

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY Page 1 of 3

Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitability for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
<u>1o4</u> Soils with very high potential productivity; no serious management problems; best suited for southern hardwoods.	<u>Adler</u> silt loam; 0-2% slopes <u>Morganfield</u> silt loam; 0-2% slopes	Ash, green Cottonwood, eastern Elms, American and slippery Hackberry and sugarberry Oak, cherrybark Oak, Nuttall Oak, water Pecan Sweetgum Walnut, black	90 110 - - 110 100 100 - 110 -	Ash, green Cottonwood, eastern Oak, cherrybark Oak, Nuttall Sweetgum Sycamore, American
<u>1o7</u> Soils with very high potential productivity; no serious management problems; suitable for southern hardwoods or pines.	<u>Collins</u> silt loam; 0-2% slopes <u>Vicksburg</u> silt loam, 0-2% slopes	Ash, green Basswood, American Cherry, black Cottonwood, eastern Hackberry and sugarberry Hickories (except water) Magnolia, southern Maple, red Oak, cherrybark Oak, Nuttall Oak, southern red Oak, water Oak, white Oak, willow Pine, loblolly Pine, shortleaf Sassafras Sweetgum Tupelo, black Walnut, black Yellow-poplar	90 - - 110 - - - - 100 100 - 100 - - 90 80 - 100 - - -	Ash, green Cottonwood, eastern Oak, cherrybark Oak, Nuttall Oak, Shumard Oak, swamp chestnut Oak, water Oak, willow Sweetgum Sycamore, American Yellow-poplar Pine, loblolly
<u>1w5</u> Seasonally wet soils with very high potential productivity; moderate equipment limitations and slight to moderate seedling mortality; best suited for southern hardwoods.	<u>Adler</u> silt loam; 0-2% slopes	Ash, green Cottonwood Elms Hackberry Maple, red Oak, cherrybark Oak, Nuttall Oak, water Oak, willow Pecan Walnut, black	90 110 - - - 110 100 90 - - -	Ash, green Cottonwood Oak, cherrybark Oak, Nuttall
<u>1w6</u> Excessively wet soils with very high potential productivity; severe equipment limitations and moderate to severe seedling mortality; best suited for water-tolerant hardwoods.	<u>Routon</u> silt loam, 0-5% slopes	Ash, green Elms Hackberry Oak, cherrybark Oak, Shumard Oak, water Oak, willow Oak, white Sweetgum Yellow-poplar	90 - - 110 - 90 90 - 100 -	Ash, green Oak, cherrybark Oak, Nuttall Sweetgum Sycamore

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY Page 2 of 3

Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitability for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
<u>lw8</u> Seasonally wet soils with very high potential productivity; moderate equipment limitations and slight to moderate seedling mortality; suitable for southern hardwoods and pines.	<u>Arkabutla</u> silt loam to silty clay loam; 0-2% slopes <u>Collins</u> silt loam; 0-2% slopes, flooded <u>Falaya</u> silt loam; 0-2% slopes	Ash, green & white Basswood, American Cherry, black Cottonwood, eastern Elms, American and slippery Hackberry and sugarberry Hickories (except water) Maple, red Magnolia, southern Oak, cherrybark Oak, Nuttall Oak, southern red Oak, water Oak, white Oak, willow Persimmon, common Pine, loblolly Pine, shortleaf Sassafras Sweetgum Tupelo, black Walnut, black Yellow-poplar	90 - - 110 - - - - - 110 100 - 100 - 100 - - 90 80 - 100 - - -	Ash, green Cottonwood, eastern Oak, cherrybark Oak, Nuttall Oak, Shumard Oak, swamp chestnut Oak, water Oak, willow Pine, loblolly Sweetgum Sycamore, American Yellow-poplar
<u>lw9</u> Excessively wet soils with very high potential productivity; severe equipment limitations and moderate to severe seedling mortality; suitable for water-tolerant hardwoods and pines	<u>Arkabutla</u> silt loam; 0-2% slopes; frequently flooded <u>Falaya</u> silt loam; 0-2% slopes; frequently flooded	Ash, green Baldcypress Elms Hackberry Cottonwood Maple, red Oak, Nuttall Oak, water Oak, willow Oak, overcup Pine, loblolly Sweetgum	90 - - - 110 - 100 100 - - - 90-100 100	Ash, green Cottonwood Oak, Nuttall Sweetgum Sycamore
<u>2o7</u> Loamy soils with high potential productivity; no serious management problems; suitable for southern hardwoods and pines	<u>Atwood</u> silt loam; 0-8% slopes <u>Dexter</u> fine sandy loam to loam; 0-17% slopes <u>Memphis</u> silt loam 0-17% slopes <u>Natchez</u> silt loam; 0-17% slopes	Basswood, American Cherry, black Oak, cherrybark Oak, southern red Oak, water Oak, white Pine, loblolly Pine, shortleaf Sweetgum Sycamore, American Tupelo, black Walnut, black	- - 90 - 90 - 90 80 90 - - -	Oak, cherrybark <sup>1/</sup> Pine, loblolly Sweetgum <sup>1/</sup> Yellow-poplar <sup>1/</sup>
<u>2r8</u> Loamy soils with high potential productivity; moderate equipment limitations and erosion hazard associated with slope steepness; suitable for southern hardwoods or pines	<u>Dexter</u> fine sandy loam to loam, 17-45% slopes <u>Memphis</u> silt loam, 17-45% slopes <u>Natchez</u> silt loam; 17-45% slopes	Basswood, American Cherry, black Oak, cherrybark Oak, southern red Oak, water Oak, white Pine, loblolly Pine, shortleaf Sweetgum Sycamore, American Tupelo, black Walnut, black	- - 90 - 90 - 90 80 90 - - -	Oak, cherrybark <sup>1/</sup> Pine, loblolly Sweetgum <sup>1/</sup> Yellow-poplar <sup>1/</sup>

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<sup>1/</sup> Plant hardwoods only on uneroded sites.

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

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Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitability for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
<u>2w8</u> Seasonally wet soils with high potential productivity; moderate equipment limitations and slight to moderate seedling mortality; suitable for southern hardwoods and/or pines.	<u>Bude</u> silt loam 0-5% slopes <u>Calloway</u> silt loam 0-2% slopes <u>Falkner</u> silt loam 0-8% slopes <u>Olivier</u> silt loam 0-5% slopes <u>Tippo</u> silt loam; 0-2% slopes	Oak, cherrybark	90	Oak, cherrybark
		Oak, swamp chestnut	-	Oak, Shumard
		Oak, water	90	Oak, water
		Oak, white	-	Pine, loblolly
		Pine, loblolly	90	Pine, shortleaf
		Pine, shortleaf	80	Sweetgum
		Sweetgum	90	
		Sycamore, American	-	
		Yellow-poplar	-	
<u>2w9</u> Excessively wet soils with high potential productivity; severe equipment limitations and moderate to severe seedling mortality; suitable for water-tolerant hardwoods or pines.	<u>Rosebloom</u> silt loam; 0-5% slopes <u>Waverly</u> silt loam; 0-2% slopes	Ash, green	90	Ash, green
		Cottonwood, eastern	100	Baldcypress
		Elms, American and slippery	-	Cottonwood, eastern
		Hackberry and sugarberry	-	Oak, cherrybark
		Honeylocust	-	Oak, Nuttall
		Magnolia, southern	-	Oak, swamp chestnut
		Maple, red	-	Oak, water
		Oak, cherrybark	90	Oak, willow
		Oak, Nuttall	100	Sweetgum
		Oak, overcup	-	Sycamore, American
		Oak, Shumard	-	Tupelo, water
		Oak, water	90	Pine, loblolly
		Oak, white	-	
		Oak, willow	80	
		Persimmon, common	-	
		Pine, loblolly	90	
		Pine, shortleaf	80	
		Sweetgum	90	
		Yellow-poplar	-	
<u>3o7</u> Soils with moderately high productivity; no serious management problems; suitable for southern hardwoods and/or pines.	<u>Grenada</u> silt loam, 0-17% slopes <u>Lax</u> silt loam, 0-17% slopes <u>Lexington</u> silt loam, 0-17% slopes <u>Loring</u> silt loam, 0-17% slopes <u>Paden</u> silt loam, 0-5% slopes <u>Providence</u> silt loam, 0-17% slopes <u>Tippah</u> silt loam; 0-17% slopes	Oak, cherrybark	90	Oak, cherrybark
		Oak, southern red	80	Oak, Shumard
		Oak, swamp chestnut	-	Oak, water
		Oak, water	80	Oak, white
		Oak, white	-	Pine, loblolly
		Pine, loblolly	80	Pine, shortleaf
		Pine, shortleaf	70	Sweetgum
		Sweetgum	80	
		Yellow-poplar	-	
<u>3w9</u> Excessively wet soils with moderately high potential productivity; severe equipment limitations and moderate to severe seedling mortality; suitable for water-tolerant hardwoods or pines.	<u>Calhoun</u> silt loam; 0-2% slopes <u>Frost</u> silt loam; 0-2% slopes <u>Henry</u> silt loam; 0-2% slopes	Oak, cherrybark	80	Oak, cherrybark
		Oak, southern red	-	Oak, Shumard
		Oak, water	80	Pine, loblolly
		Oak, white	-	Sweetgum
		Pine, loblolly	80	
		Pine, shortleaf	70	
		Sweetgum	80	
		Tupelos	-	
		Yellow-poplar	-	



